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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/386,247	08/31/1999	KEVIN J. TOREK	MICRON.06A/9	1200

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EXAMINER

TRAN, BINH X

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 11/05/2003

20

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/386,247

Applicant(s)

TOREK ET AL.

Examiner

Binh X Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-9, 15-20, 22-24, 26-29, 31-33, 35, 63, 64, 66-68, 70-76 and 79 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-9, 17-20, 22-24, 26-29, 31-33, 35, 63, 64, 66-68 and 70-76 is/are allowed.
- 6) ☒ Claim(s) 15, 16 and 79 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In lines 8-9 of claim 16, "the sprayer" lack antecedent basis. The examiner suggests replacing "the sprayer" with --the nozzle--.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konishi et al. (US 6,145,519) in view of Christenson et al. (US 6,274,506).

Konishi discloses a chamber comprising:

a gas input (i.e., N₂ or ambient air or ozone etc col. 5-6);

a plurality of nozzles (4) connected to the manifold (Fig 2a-2d or Fig 4a-4c);

at least two rotating axes with the process chamber (3), the two rotating axes positioned to support and rotating the wafer (Fig 2a-2d);

a first fluid line (i.e. input line) supplying the fluid to the nozzle manifold (Fig 2d or Fig 4c);

a second fluid line (i.e. drain or the pipe connected to the recovering unit) capable of diverting the fluid away from the first line.

Konishi fail to disclose a wafer cartridge holding plurality of wafers. In a semiconductor apparatus, Christenson teaches to use a cassette (18) (read on "wafer cartridge") to hold plurality of wafers during a cleaning process. It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Konishi in view of Christenson by using a wafer cartridge because this would reduce the processing time by cleaning many wafers at the same time.

6. Claims 16, 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christenson et al. (US 6,274,506) in view of Dautartas et al. (US 6,124,158).

Christenson disclose a chamber comprising:

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at least on nozzle (22 or 122) connected to the fluid supply (40 or 14-) and configured to supply fluid on a semiconductor workpiece (19) (Fig 1, Fig 3);

a rotator (14 or 114) capable of rotating the semiconductor workpiece during a removal of a portion of the semiconductor workpiece at a 10 RPM (col. 10 lines 46-55), wherein the semiconductor workpiece is located between the nozzle and the rotator (See Fig 1, Fig 3).

Christenson does not disclose a selector valve connected to the pump to selectively pulse the fluid through the sprayer (i.e. the nozzle 40). In a semiconductor apparatus, Dautartas discloses that pulsed valves to selectively pulse the fluid through the sprayer (col. 4 lines 24-27, col. 5 lines 14-20)

It would have been obvious to one having ordinary skill in the art, at the time of invention, to Christenson in view of Dautartas, by using a valve to pulse the fluid through the sprayer because this will allow more flow control, increased efficiency and reliability. Further Bergman is not particular whether the fluid is flown continuously or intermittent (i.e., continuous vs. pulse) therefore pulsing would produce an expected result.

Respect to claim 79, Christenson discloses the RPM is a result effective variable. The result effective variable is commonly determined by routine experiment. The process of conducting routine experiments so as to produce an expected result is obvious to one of ordinary skill in the art. Hence, it would have been obvious to one of ordinary skill in the art, at the time the invention to modify Bergman by perform routine experiments to obtain optimal result.

Allowable Subject Matter

7. Claims 6-9, 17-20, 22-24, 26-29, 31-33, 35, 63-64, 66-63, 66-68, 70-76 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter: The cited prior arts fail to disclose or suggest either one of the following in conjunction with all other limitation in the claim: an apparatus having a rotator that creates a gap between a wafer and a wafer cassette, wherein the rotator rotates the wafer, or an apparatus having at least one rotator configured to at least partially separate the semiconductor workpiece from a carrier, the rotator configured to rotate the semiconductor workpiece at one or more speeds in conjunction with one or more duty cycles of the varying fluid.

Response to Arguments

9. Applicant's arguments with respect to claims 15-16, 79 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh X Tran whose telephone number is (703) 308-1867. The examiner can normally be reached on Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G Norton can be reached on (703) 305-2667. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Binh X. Tran



NADINE G. NORTON
PRIMARY EXAMINER